

### CLAIMS

1. A method for the selection of probiotic microbial strains, comprising the following steps:
  - a. selecting for non-pathogenic strains which are capable of surviving in breast milk and/or amniotic fluid, and
  - b. selecting for non-pathogenic strains which are able to be transferred to breast milk and/or amniotic fluid after oral intake in healthy individuals without colonizing other internal organs except mucousas.
2. A method according to claim 1, wherein both breast milk and amniotic fluid are from human sources.
3. A method as claimed in claim 2, wherein the probiotic tested strains are any lactic acid bacteria selected from the genera: *Lactobacillus*, *Lactococcus*, *Leuconostoc*, *Enterococcus*, *Streptococcus* and *Bifidobacterium*.
4. A method according to claims 3, wherein the probiotic strains tested had previously been obtained from: breast milk, feces of breastfed babies or amniotic fluid.
5. A method according to claim 4, wherein the strains tested had been obtained from human samples.
6. A bacterial strain selected by a method according to any of claims 1 to 5
7. A strain of bacteria deposited in the CECT under Accession N° 5711 (*Lactobacillus coryniformis*) or a variant thereof.
8. A strain of bacteria deposited in the CECT under Accession N° 5713 (*Lactobacillus salivarius subsp. salivarius*) or a variant thereof.

9. A strain of bacteria deposited in the CECT under Accession N° 5714 (*Lactobacillus gasseri*, formerly *L. acidophilus*) or a variant thereof.
- 5 10. A strain of bacteria deposited in the CECT under Accession N° 5715 (*Lactobacillus gasseri*) or a variant thereof.
11. A strain of bacteria deposited in the CECT under Accession N° 5716 (*Lactobacillus fermentum*) or a variant thereof.
- 10 12. A biologically pure culture of a strain according to any of claims 6-11.
13. Use of mammal milk and of mammal amniotic fluid as a source to obtain non-pathogenic probiotic bacteria, especially probiotic bacteria selected from the genera *Lactobacillus*, *Lactococcus*, *Enterococcus*, *Streptococcus* and  
15 *Bifidobacterium*
14. Use of mammal milk and of mammal amniotic fluid according to claim 13 where the mammal milk and the mammal amniotic fluid are human.
- 20 15. Use of mammal milk and of mammal amniotic fluid according to claim 14 as a source to obtain the microbial strains defined in any of the claims 6 to 11.
16. A composition comprising at least one of the bacterial strains defined in claims 6 to 11, where the composition comprises preferably from 2 to 6  
25 strains, more preferably from 2 to 4 strains, most preferably from 2 to 3 strains, and where each of the strains is present in the composition in a proportion from 0.1% to 99.9%, preferably from 1% to 99%, more preferably from 10% to 90%.
- 30 17. A composition comprising at least one of the bacterial strains defined in claims 6 to 11 together with another strain or mixture of strains where the mixture comprises preferably from 2 to 6 strains, more preferably from 2 to 4

strains, most preferably from 2 to 3 strains and where each of the strains is present in the composition in a proportion from 0.1% to 99.9%, preferably from 1% to 99%, more preferably from 10% to 90%.

- 5 18. A composition comprising a strain as claimed in any one of claims 6 to 11 or a composition as defined in any of the claims 16 to 17 in a lyophilized form.
19. A composition comprising a strain as claimed in any one of claims 6 to 11 or a composition as defined in any of the claims 16 to 17 in a frost form.
- 10 20. A composition comprising a strain as claimed in any one of claims 6 to 11 or a composition as defined in any of the claims 16 to 17 in an inactivated form or dead.
- 15 21. A composition obtainable from the supernatant of a culture of a bacterial strain according to any of the claims 6 to 11, or from a composition according to any of the claims 16 to 17.
- 20 22. A composition obtainable by extraction of a culture of any of the bacterial strains according to claims 6 to 11, or by extraction of a composition according to claims 16 to 17.
- 25 23. A product obtainable from the metabolic activity of any of the strains specified in claims 6 to 11, from a culture according to claim 12 or from a composition according to claims 16 to 17, wherein the product is preferably an enzyme.
- 30 24. Food product comprising support material and at least one strain according to any of the claims 6 to 11, a culture, a composition or a product according to claims 12 and 16 to 24.

25. A product according to claim 24 wherein the support material is a food composition selected from milk, yoghurt, curd, cheese, fermented milks, milk based fermented products, meat based fermented products, fermented cereals based products, milk based powders, cereal based powders, infant formulae, clinical nutrition formula, ice-creams, juices, flours, bread, cakes, sugar, candies or chewing-gums.
26. A product according to claim 24, wherein the microbial strain according to claims 6 to 11 is contained in the support material in an amount from about  $10^5$  cfu/g to about  $10^{12}$  cfu/g support material, preferably from about  $10^6$  cfu/g to about  $10^{11}$  cfu/g support material, more preferably from about  $10^6$  cfu/g to about  $10^{10}$  cfu/g support material.
27. A pharmaceutical composition comprising at least one strain according to any of the claims 6 to 11, a culture, a composition or a product according to claims 12 and 16 to 26 and pharmaceutically acceptable excipients.
28. A pharmaceutical composition according to claim 27 wherein the microbial strains are contained in an amount from  $10^5$  cfu/g to  $10^{14}$  cfu/g support material, preferably from  $10^6$  cfu/g to  $10^{13}$  cfu/g support material, more preferably from  $10^7$  cfu/g to  $10^{12}$  cfu/g support material.
29. A strain of bacteria as claimed in anyone of claims 6 to 11, a culture, a composition or product according to claims 12 and 16 to 26 for therapeutic or prophylactic treatment.
30. A composition according to claim 29 for topic, oral, ocular, nasal, enteral, urogenital, vaginal or rectal administration
31. A composition according to claim 29 designed to be administered to pregnant woman for the therapeutic or prophylactic treatment of their foetus.

32. A composition according to claim 29 designed to be administered to lactating woman for the therapeutic or prophylactic treatment of their breastfed babies.
- 5 33. Use of a strain according to any of the claims 6 to 11, a culture, a composition or a product according to claims 12 and 16 to 27 in the manufacture of a product for the therapeutic or prophylactic treatment of human and animal diseases.
- 10 34. Use according to claim 33 for the treatment and/or prophylaxis of chronic or acute infection, or of undesirable microbial colonization, wherein the infection or colonization is caused by parasites, bacteria, yeasts, fungi or viruses, of a mucosal surface in a subject or animal in need thereof, wherein the mucosal surface is selected from but not restricted to the group consisting of oral, nasopharyngeal, respiratory, gastric, intestinal, urogenital and  
15 glandular.
35. Use according to claim 33 for the treatment and/or prophylaxis of temporally depressed immune levels in individuals subjected to physiological stress.
- 20 36. Use according to claim 33 for the improvement of the immune gut barrier in a subject or animal in need thereof; for the treatment and/or prophylaxis of down-regulating hypersensitivity reactions to food and metabolic intolerance such as: lactose intolerance; of constipation and other gastro-intestinal disorders; of inflammatory or auto-immune disorders such as: IBD, ulcerative  
25 colitis, arthritis, atherosclerosis, multiple sclerosis, psoriasis or sarcoidosis; and of tumor growth, metastasis and cancer in a subject or animal in need thereof.
- 30 37. Use according to claim 33 for the treatment and/or prophylaxis of allergic disorders and asthma in a subject or animal in need thereof.

38. Use according to claim 33 for the treatment and/or prophylaxis of neurodegenerative diseases in an individual or animal in need thereof, selected from, but not restricted to, the group consisting of Parkinson, stroke, Alzheimer, Huntington and dementia.